

*Walt*  
*Orly*  
*Ralph*  
*fls - Ballon Unit*  
*JP*

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23 August 1957

Dear Sir:

The intent of this letter is to summarize the activities and plans of the Low Altitude Project Tasks A, B, C and H for the month of July 1957.

Task "Able" - Miscellaneous

requested that five 11-2-2 tapeless cylinder balloons be constructed for him by the end of July. These units were built and given to  personally on August 2.

On July 30  personnel conducted tests on the Navy hydrogen generator and rates of hydrogen production were found. Maximum rate of hydrogen generation was found to be approximately 3500 cu. ft. per hour. A 200 cu. ft. pillow balloon was inflated with the hydrogen and it was found that the gas was quite pure realizing a lift of approximately 64 lbs. per 1000 cu. ft. An extensive list of improvements that can be made on the generator was made by  personnel and submitted to  Plans were made to send the generator to New Jersey and  personnel spent approximately one day with  instructing him on its use.

visited the Air Force hydrogen balloon people on July 15 in order to gain knowledge in the safety and handling of hydrogen equipment and balloons. His report is in our file and resulted in our cancelling a proposed hydrogen inflation and flight for  due to lack of suitable safety equipment.

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25X1

- 2 -

23 August 1957

A test was conducted on a new shroud for [ ] using a 302P balloon. Movies of the event were taken from above by a photographer on an 80 foot boom and a photographer in the field. The shroud was unsuccessful in that its release mechanism worked but the gores failed to continue to open.

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A tethered balloon test was planned to be conducted during [ ] visit but it was decided that not enough planning had gone into it. This test will be conducted presumably in the latter part of September.

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A fiberglass mold was constructed to build another seat for the plane used in the Task Easy Florida flights. This seat is narrower. The sub-structure that mounts the seat to the plane could not be purchased from the manufacturer until August 15 (due to vacation shut-down) nor from any other source so the unit will not be finished until the end of August.

#### Task "Baker" - Hot Air Program

Progress for "Task Baker" of Project 55028 during the month of July consisted of seven foot balloon tests using metallized and plain polyethylene material of single and double wall construction. These tests were performed to establish relative heat transfer coefficients for the various balloon configurations. The "U" valve on the single wall internally metallized was equal to the valve on the single wall externally metallized. This valve in turn was 63% of the valve for a single wall plain poly balloon. Data on the double wall was inconclusive to date due to poor wall separation or insufficient lift to support the weight of the balloon. A report is being compiled on the model balloon tests. A test on a 200 ft<sup>3</sup>/hr. Buzzer burner demonstrated that this burner could operate efficiently at a rate of 500,000 Btu./hr. using an expansion valve to vaporize the fuel. Studies of other burner types are being continued.

A design for a double wall balloon was initiated, however this design is not yet finalized pending a further investigation of material with increased temperature resistance. A "Hot Air" Steering Committee was formed to discuss and resolve the issues arising from the development of a "Hot Air" balloon system. Thus far this committee has met twice and will meet periodically in the future as required.

#### Task "Charlie" - Target Drops

The two liquid oxygen units for the fiberglass gondola were totally destroyed in the tests conducted by ONR personnel at Sequaro, New Mexico in May 1957. Two new units were being built-up from Task Easy and Strato-Lab parts and also from new and exchanged parts. It is expected that these units will be finished by the end of July and all other flight gear and instrumentation ready to fly by that time. A supplement to this contract for the two new LOX units

25X1

- 3 -

23 August 1957

is expected to be made by [ ] as per our telephone conversation in June 1957. A complete listing of the time and costs involved will be drawn up after they are finished and submitted to [ ]

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Two tests were run on the rate of descent indicator (Velometer) which we intend to use on the high altitude target drop flight. The units were put in the [ ] altitude chamber which measures approximately 6 1/2 feet x 8 feet x 14 feet in order to get a large enough volume to get away from vacuum pump throb. The chamber was run up to 40,000 feet and -60°F and then brought down at rates of 3-10 feet per second to check the velometer. Very good results were obtained and correction values found for each altitude range. The instrument was checked against a highly accurate mercury monometer mounted on the chamber.

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All other flight preparations were made for this flight during July with most of the equipment being triple checked.

Task "Hotel" - Foreign Built Target Release System

On July 18 this task was opened again by [ ] He listed six main areas of work required to end up with all the necessary data, handbooks, specifications and drawings for the foreign layman to successfully build, launch and determine flight results of the 65 lb. and 130 lb. leafletting systems. During July the mechanical drawings were all finished with plans being made for simplified exploded-view drawings. Two engineers were assigned to the task on July 30 with further results pending their meeting with [ ] in early August.

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